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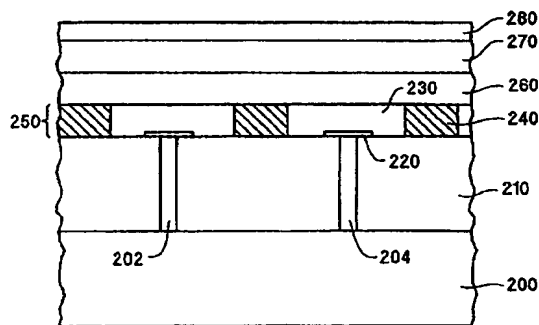
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(54) Image sensor array device

(57) An image sensor array. The image sensor array includes a substrate [200]. An interconnect structure [210] is formed adjacent to the substrate [200]. An amorphous silicon electrode layer [250] is adjacent to the interconnect structure [210]. The amorphous silicon electrode layer [250] includes electrode ion implantation regions [240] between pixel electrode regions [230]. The pixel electrode regions [230] define cathodes of an array of image sensors. The electrode ion implantation regions [240] provide physical isolation between the pixel electrode regions [230]. The cathodes are electrically connected to the interconnect structure [210]. An amorphous silicon I-layer [260] is adjacent to the amorphous silicon electrode layer [250]. The amorphous silicon I-layer [260] forms an inner layer of each of the image sensors. A transparent electrode layer [280] is formed adjacent to the image sensors. An inner surface of the transparent electrode layer [280] is electrically connected to anodes of the image sensors and the interconnect structure [210]. The amorphous silicon I-layer [260] can further include I-layer ion implantation regions [320] that provide physical isolation between the inner layers of the image sensors. The I-layer ion implantation regions [320] align with the electrode ion implantation regions [240]. An amorphous silicon P-layer [270] can be formed adjacent to the amorphous silicon I-layer [260]. The

amorphous silicon P-layer [270] forms an outer layer of each of the image sensors. The amorphous silicon P-layer [270] can include P-layer ion implantation regions [420] that provide physical isolation between the outer layers of the image sensors.

*Figure 2***EP 1 045 450 A3**